



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/826,375

04/19/2004

Shahar Atir

P-6343-US

9730

56639

7590

09/25/2008

EMPK & Shiloh, LLP

c/o Landon IP, Inc.

1700 Diagonal Road

Suite 450

Alexandria, VA 22314

EXAMINER

NGUYEN, VAN THU T

ART UNIT

PAPER NUMBER

2824

MAIL DATE

DELIVERY MODE

09/25/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/826,375	<b>Applicant(s)</b> ATIR ET AL.	
	<b>Examiner</b> VanThu Nguyen	<b>Art Unit</b> 2824	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09/03/2008 (RCE and amendment).
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 12-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/19/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is in response to RCE and Amendment filed on 09/03/2008. Claims 1-11 are examined. Claims 12-17 have been withdrawn.

### ***Claim Rejections - 35 USC § 112***

2. Claims 6 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

How is it possible to *sense the adjacent memory cells partially shared sensing path* (i.e. shared bit line between two adjacent memory cells) as claimed in claim 1 line 3, but later to have *sense circuit coupled to bit lines of said adjacent cells that are not shared by said adjacent cells* as claimed in claim 6 lines 2-3?

Same rejection applied for claim 11.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 7-8, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,831,892 to Thewes et al. ("Thewes").

**Regarding claim 1**, Thewes discloses, in FIG. 1, a method of reading data in a virtual ground array of memory cells comprising:

- implicitly mitigating neighboring effect by sensing substantially simultaneously a state of adjacent memory cells, wherein a bit stored in each cell of said adjacent memory cells through at least a partially shared sensing path (see col. 1 ll. 6-12).

**Regarding claim 2**, Thewes further discloses wherein said sensing substantially simultaneously comprises:

- coupling a sensing circuit to a first source/drain terminal of each cell of said adjacent memory cells (FIG. 1: coupling evaluation circuit AWS to bit line BL<sub>n</sub>);
- setting a voltage at a second drain/source terminal of each cell of said adjacent cells to a read level (FIG. 4: setting bit line BL<sub>n-1</sub> to ground and bit line BL<sub>n</sub> to V<sub>vm</sub>); and
- sensing in a reading direction the state of said adjacent cells (see col. 4 ll. 19-55).

**Regarding claims 3-5 and 10**, Thewes further discloses wherein adjacent cells share a word line WL<sub>k</sub>, an inside bit line BL<sub>n</sub>, the evaluation circuit AWS coupled to the inside/shared bit line BL<sub>n</sub>,

**Regarding claim 7**, Thewes inherently discloses wherein any one of said memory cells stores at least one bit in said charge trapping region (because the memory cells in Thewes are EPROM cells, see col. 3 ll. 6-15).

**Regarding claim 8**, Thewes discloses wherein said adjacent cells are sense with substantially identical current (because they both have the same sense current).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thewes in view of U.S. Patent No. 6,975,536 to Maayan et al. ("Maayan").

Thewes discloses, as applied in prior rejection of claim 1, all claimed subject matter except further limitation as set forth in claim 9.

**Regarding claim 9**, Maayan discloses, in FIG. 1, a virtual ground memory device comprising nitride read only memory (NROM) cells

Since Thewes and Maayan are both from the same field of endeavor, the purpose disclosed by Maayan would have been recognized in the pertinent art of Thewes.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the method of reading disclosed in Thewes for the NROM memory device in Maayan in order to shortening the duration of read time (see col. 1 ll. 6-11).

***Response to Arguments***

7. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. When responding to this office action, applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner in locating appropriate paragraphs.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VanThu Nguyen whose telephone number is (571) 272-1881. The examiner can normally be reached on Monday-Thursday, 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/826,375  
Art Unit: 2824

Page 6

September 25, 2008

/VanThu Nguyen/  
Primary Examiner  
Art Unit 2824